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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/650,208

08/28/2003

Andrew W. Phillips

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EXAMINER

NGUYEN, XUAN LAN T

ART UNIT

PAPER NUMBER

3657

MAIL DATE

DELIVERY MODE

12/01/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/650,208	PHILLIPS ET AL.	
	Examiner	Art Unit	
	Lan Nguyen	3657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2009.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,9,10,12-16,19-24,26 and 32-36 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,3-6,9,10,12-16,19-24,26,32 and 34 is/are rejected.
7) ☒ Claim(s) 33,35 and 36 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 28 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>approved spec.</u> |

DETAILED ACTION

Specification

1. The amendments to the specification dated 8/7/09 have been approved.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3-6, 9, 10, 12-16 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Buchanan et al. (USP 6,715,597).

Re: claims 1 and 32, Buchanan et al. show a cooling system for cooling a friction device, as in the present invention, comprising: a flow control device 94 that controls a flow of cooling fluid through said friction device; and a controller that estimates at least one temperature state that includes a bulk friction device temperature of said friction device based on an estimated heat rate of said friction device as shown in boxes 242 and 256 of figure 3A, calculates a flow command based on said temperature state and operates said flow control device based on said flow command as shown in box 258. Buchanan further shows said temperature state is based on thermal inertia, heat

rejection and a loop time of a thermal model of said friction device as shown in figure 3A.

Re: claim 3, Buchanan determines a friction device torque and a friction device slip speed and calculates said heat rate of said friction device based on said friction device torque and said friction device slip speed signal as shown in box 254.

Re: claim 4, Buchanan also shows a sump 90 for collecting said flow of fluid; and a sump temperature sensor that generates a sump temperature signal, wherein said temperature state is further based on said sump temperature signal as shown in box 258.

Re: claim 5, Buchanan also shows said temperature state is further based on a current flow command, as shown in box 256 in figure 3A.

Re: claim 6, Buchanan shows said flow command is further based on a heat rate of said friction device and a sump temperature of said flow of fluid, as shown in box 258 in figure 3A.

Re claim 9, Buchanan shows said temperature state is a thermal energy of said friction device, as shown in figure 3A.

Re: claim 10, Buchanan shows a method of controlling cooling of a friction device, as in the present invention, comprising: estimating a temperature state of a component of said friction device based on an estimated heat rate of said friction device in boxes 242 and 256 of figure 3A; calculating a flow command based on said temperature state 258, and controlling a cooling fluid flow through said friction device

based on said flow command in box 236. Buchanan further shows a loop time of a thermal model of said friction device as shown in figure 3A.

Re: claim 12, Buchanan determines a friction device torque and a friction device slip speed and calculates said heat rate of said friction device based on said friction device torque and said friction device slip speed signal in box 254.

Re: claim 13, Buchanan measures the temperature with a sensor in box 242.

Re: claim 14, Buchanan also shows said temperature state is further based on a current flow command, as shown in box 256 in figure 3A.

Re: claims 15 and 16, Buchanan shows said flow command is further based on a heat rate of said friction device and a temperature of said fluid flow, as shown in box 258.

Re claim 19, Buchanan shows said temperature state is a thermal energy of said friction device, as shown in box 242.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 34, 20-24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buchanan et al. (USP 6,715,597) in view of Hosseini et al. (USP 5,950,789).

Re : claim 34, Buchanan's cooling system, as rejected above, lacks the use of a low pass filter. Hosseini teaches the well known concept of using a low pass filter in a control loop to control a clutch system in column 4, lines 30-05, to provide a more accurate controlling scheme. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the system of Buchanan with a low pass filter as taught by Hosseini in order to provide a more accurate controlling scheme as taught by Hosseini.

Re: claim 20, Buchanan shows a method of controlling cooling of a friction device, as in the present invention, comprising: calculation a heat rate of said friction device in box 254; estimating a temperature state that includes a bulk temperature of said friction device based on said heat rate in box 256; determining a flow command based on said temperature state 258 and operating a flow control device 94 based on said flow command to control a cooling fluid flow into said friction device in box 236. Buchanan's method of cooling lacks the use of a low pass filter. Hosseini teaches the well known concept of using a low pass filter in a control loop to control a clutch system in column 4, lines 30-05, to provide a more accurate controlling scheme. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the method of Buchanan with a low pass filter as taught by Hosseini in order to provide a more accurate controlling scheme as taught by Hosseini.

Re: claim 21, Buchanan determines a friction device torque and a friction device slip speed and calculates said heat rate of said friction device based on said friction device torque and said friction device slip speed signal in boxes 244, 252, 254.

Re: claim 22, Buchanan measures the temperature with a sensor in box 242.

Re: claim 23, Buchanan also shows said temperature state is further based on a current flow command as shown in box 256.

Re: claim 24, Buchanan shows figure 3A controlling fluid flow as claimed.

Re claim 26, Buchanan shows said temperature state is a thermal energy of said friction device in box 258.

Allowable Subject Matter

6. Claims 33, 35 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. It is found that when Applicant claims the specifics in the controlling scheme of the temperature as recited in claims 33, 35 and 36, the claimed features have defined over the prior art of record.

Response to Arguments

7. Applicant's arguments filed 8/07/09 have been fully considered but they are not persuasive.

- Applicant argues that Buchanan does not mention "thermal inertia", "inertia", etc. A quick review of the instant specification and drawings shows that the terms "thermal inertia" have been mentioned once in the explanation of the formula in paragraph [0027]. No other explanation has been provided. The formula, as presented in claim 33, has been indicated to be allowable. A mentioning of the

terms "thermal inertia" without further explanation is found to be non-allowable.

These terms have been interpreted broadly; since, there is no detailed explanation of them provided in the disclosure.

- Applicant further argues that Buchanan does not mention "heat rejection". It is believed that in order for the cooling fluid to have an increase in temperature, heat has been rejected from the friction device.
- Applicant further argues that Buchanan does not mention "loop time". A quick review of the instant specification and drawings shows that the terms "loop time" have been mentioned once in the explanation of the formula in paragraph [0027]. No other explanation has been provided. The formula, as presented in claim 33, has been indicated to be allowable. A mentioning of the terms "loop time" without further explanation is found to be non-allowable. These terms have been interpreted broadly; since, there is no detailed explanation of them provided in the disclosure.
- A new ground of rejection for claims 20-24 and 26 is due to Applicant's amendment to claim 20.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Nguyen whose telephone number is (571) 272-7121. The examiner can normally be reached on Monday through Friday, 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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/Xuan Lan Nguyen/ 11/30/09
Primary Examiner
Art Unit 3657